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## COAL BEDS IN LAWRENCE COUNTY, PENNSYLVANIA.

By

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## Introduction.

Although Lawrence County contains thirteen coal beds that are locally workable, their areas are small, and their quality is so variable that the county does not figure as an important coal producer. In 1918 the production was 107,086 tons, valued at \$287,302. Of this amount 93,253 tons, valued at \$252,561 were loaded at the mines for shipment; 1,882 tons were sold to local trade and used by employees; 11,951 tons were used at the mines for steam and heat. None of the coal was coked at the mines.

Lawrence County is on the west boundary of the State between Mercer and Beaver counties. The county's greatest width from north to south is 20 miles; from east to west is 23 miles. Its area is 370 square miles. Its population in 1920 was 85,545.

Lawrence County has good railroad facilities. The Pennsylvania Railroad follows the valley of Beaver River to Lawrence Junction, where one branch goes northwest to Youngstown, Ohio, and the other to New Castle, Sharon, and north. Another branch runs northeast from New Castle along the valley of Neshannock Creek to the northern edge of the county. The Pittsburgh and Lake Erie and the Baltimore and Ohio railroads follow Beaver Valley across the county; the Erie Railroad runs from Sharon to New Castle. The Western Allegheny Railroad, entering the eastern side of the county at Grant City, extends west to Beaver River below New Castle Boro. The New Castle and Butler Railroad has several short branches northeast from New Castle.

Lawrence County has many miles of improved roads as well as good dirt roads. The highways are not used much for the transportation of coal.



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The northern part of Lawrence County shows plainly the effect of glacial action. The surface is rolling; there are no hills or knobs with steep slopes; there are no deeply intrenched streams, and the valleys and flats are covered with many feet of glacial drift. The southern part of the county, below the terminal moraine, is decidedly hilly. The streams have deeply intrenched themselves in valleys with steep slopes, having massive sandstone outcrops. Steep hills are numerous. Three terraces are well developed along the larger drainage basins.

The rocks in the county lie nearly flat; locally they dip gently northward.

### COAL BEDS.

Sharon Coal. The Sharon coal, which has been an important bed in Mercer County, is very thin in Lawrence County, and is rarely mineable. The coal is dirty and has none of the characteristics it displays a few miles to the north.

Quakertown Coal. This bed is thin, averaging less than 12 inches but is persistent. At a few points it is mineable. In the vicinity of Quakertown Run the coal has a maximum thickness of 3 feet and has been mined for domestic fuel. The coal tends to be of the blocky variety; it is high in ash, sulphur and volatile matter. The fixed carbon is low.

Lower Mercer Coal. This bed is thin and is rarely mineable. It is very persistent, but is very shaly and pyritous. The coal is thickest, 3 feet, in the Neshannock Valley and in the vicinity of New Wilmington. The average is much less. In places a few inches at the bottom is canneloid coal.

Upper Mercer Coal. This coal is not of commercial importance in the county. Its horizon is marked by a few inches of clean coal, or many feet of coal so dirty that it cannot be mined profitably.

A thin and impure coal appears locally a few feet below the Homewood sandstone. It has been mined for domestic use in the absence of better coal.

Brookville ("A") Coal. This bed, lying directly upon, or a few feet above the Homewood sandstone, is rarely mineable and in places is entirely absent. It has been mined in the northern part of the county, where it is locally 3 feet 6 inches to 4 feet thick, with one bone or pyrite parting a few inches from the top. The coal is clean and of good quality, although its thickness does not warrant production in many places.

Clarion ("A'") Coal. This bed is rarely mineable in the county. It is locally 18 inches thick, but averages about 6 inches.

Kittanning Coals. The correlation of the Kittanning group of coals in Lawrence County is uncertain. Two of these coals are very thin and unimportant. A third, locally known as the Darlington coal,



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### Coal

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is probably the Middle or Upper Kittanning. It is the most important bed in the county.

The Darlington coal ranges from 2 feet 6 inches to 4 feet thick. One characteristic thin band of bone is always present in some part of the bed. The bed varies much in quality in different parts of the county. Along Big Beaver Valley the coal is excellent, especially in the vicinity of New Castle and Wampun, and is highly valued as a gas coal. It is also a good smithing coal, the ash and sulphur being low. In the Slippery Rock Valley the coal is the same thickness, but the sulphur content increases, so that it cannot be used as a smithing coal, although the ash is low. In the southwestern part of Plain Grove township the coal is over 4 feet thick, half of which is a genuine block coal, resembling very much the Sharon block coal of Mercer County.

There are large areas of the Darlington coal in the county, but with the exception of the localities named, it is thin and dirty. However, it is used extensively as domestic fuel in many places.

Lower Freeport ("D") Coal. This coal, lying about 70 feet above the Darlington coal, is persistent in the county, but is very lenticular and variable in quality. The coal is less than 2 feet thick, and is very dirty and high in sulphur. Locally, as in Perry township, the bed is over 5 feet thick, but is very dirty. In Little Beaver township it has a local thickness of 6 feet and is excellent.

Upper Freeport ("E") Coal. This coal lies from 130 to 140 feet above the Darlington coal. The principal outcrops are in Perry and Big Beaver townships, where it reaches a local maximum thickness of 6 feet. The average thickness is less than 2 feet. The coal is dirty, high in sulphur and ash, friable, and breaks up when mined. It is used only for domestic fuel.

Brush Creek Coal. This bed, lying from 200 to 220 feet above the Darlington coal, is geologically the highest coal in the county. Its outcrop is limited and only small isolated areas in Perry and Wayne townships are thick enough for profitable mining. Three feet is the maximum thickness. The coal is of the "block" variety, with low ash and sulphur.





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The following is a description of the various types of coal found in the district. The coal is of various ranks, from lignite to anthracite. The lignite is of a dark brown color and is of a soft texture. The bituminous coal is of a dark gray color and is of a medium texture. The anthracite is of a dark gray color and is of a hard texture. The coal is found in various layers, some of which are very thin and some are very thick. The coal is found in various parts of the district, some of which are very rich and some are very poor. The coal is found in various quantities, some of which are very large and some are very small. The coal is found in various forms, some of which are very pure and some are very impure. The coal is found in various grades, some of which are very high and some are very low. The coal is found in various sizes, some of which are very large and some are very small. The coal is found in various shapes, some of which are very regular and some are very irregular. The coal is found in various colors, some of which are very dark and some are very light. The coal is found in various textures, some of which are very smooth and some are very rough. The coal is found in various qualities, some of which are very good and some are very bad. The coal is found in various quantities, some of which are very large and some are very small. The coal is found in various forms, some of which are very pure and some are very impure. The coal is found in various grades, some of which are very high and some are very low. The coal is found in various sizes, some of which are very large and some are very small. The coal is found in various shapes, some of which are very regular and some are very irregular. The coal is found in various colors, some of which are very dark and some are very light. The coal is found in various textures, some of which are very smooth and some are very rough. The coal is found in various qualities, some of which are very good and some are very bad.

There are large areas of the bituminous coal in the district, and with the exception of the lignite, it is the only coal found. However, it is not extensively used in the district.

Lower Bituminous Coal. This coal, lying about 10 to 15 feet above the lignite, is of a dark gray color and is of a medium texture. It is found in various layers, some of which are very thin and some are very thick. The coal is found in various parts of the district, some of which are very rich and some are very poor. The coal is found in various quantities, some of which are very large and some are very small. The coal is found in various forms, some of which are very pure and some are very impure. The coal is found in various grades, some of which are very high and some are very low. The coal is found in various sizes, some of which are very large and some are very small. The coal is found in various shapes, some of which are very regular and some are very irregular. The coal is found in various colors, some of which are very dark and some are very light. The coal is found in various textures, some of which are very smooth and some are very rough. The coal is found in various qualities, some of which are very good and some are very bad.

Upper Bituminous Coal. This coal lies from 100 to 150 feet above the lower bituminous coal. It is of a dark gray color and is of a medium texture. It is found in various layers, some of which are very thin and some are very thick. The coal is found in various parts of the district, some of which are very rich and some are very poor. The coal is found in various quantities, some of which are very large and some are very small. The coal is found in various forms, some of which are very pure and some are very impure. The coal is found in various grades, some of which are very high and some are very low. The coal is found in various sizes, some of which are very large and some are very small. The coal is found in various shapes, some of which are very regular and some are very irregular. The coal is found in various colors, some of which are very dark and some are very light. The coal is found in various textures, some of which are very smooth and some are very rough. The coal is found in various qualities, some of which are very good and some are very bad.

Anthracite Coal. This coal lies from 200 to 300 feet above the upper bituminous coal. It is of a dark gray color and is of a hard texture. It is found in various layers, some of which are very thin and some are very thick. The coal is found in various parts of the district, some of which are very rich and some are very poor. The coal is found in various quantities, some of which are very large and some are very small. The coal is found in various forms, some of which are very pure and some are very impure. The coal is found in various grades, some of which are very high and some are very low. The coal is found in various sizes, some of which are very large and some are very small. The coal is found in various shapes, some of which are very regular and some are very irregular. The coal is found in various colors, some of which are very dark and some are very light. The coal is found in various textures, some of which are very smooth and some are very rough. The coal is found in various qualities, some of which are very good and some are very bad.